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A LONGITUDINAL ANALYSIS OF NAVY FAMILY
SEPARATION

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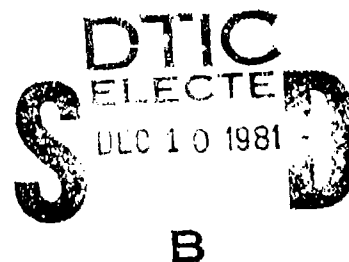
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A LONGITUDINAL ANALYSIS OF NAVY FAMILY SEPARATION

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The attitudes, psychological adjustment, and health of Navy wives whose husbands were deployed were compared with those of Navy wives whose husbands were at home. Similarly, attitudes, stress, and reenlistment intentions were assessed in the deployed and nondeployed groups of husbands. Pre-, mid-, and postseparation interviews with the wives revealed that separated wives exhibit higher levels of depressive affect and visit the doctor more frequently than do nonseparated wives. The majority of the psychological variables, however, revealed no differences between the groups. The wife's attitude		

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toward reenlistment, the husband's attitude toward the Navy, and the husband's perception of family stress were the best predictors of his reenlistment intention. Data further indicated that the morale of the men in both groups declined over the 7-month period of the study.

FOREWORD

This research was jointly supported by the Naval Medical Research and Development Command under task area ZF51.524.022.0006 and by OP-152 through the Family Support Program, Z1342-PN, as part of an ongoing effort at the Naval Health Research Center and the Navy Personnel Research and Development Center concerning the role of the military family in a variety of readiness oriented criteria. The purposes of this study were to determine how family separation affected the attitudes and adjustment of Navy couples and to explore the relationship between the attitudes and adjustment of the wife and the reenlistment intent of the service member.

Preliminary results of this study were presented at the Sixteenth Annual Convention of the Western Psychological Association, Honolulu, Hawaii, 5 May 1980, and at the annual meeting of the National Council of Family Relations, Portland, Oregon, 22 October 1980.

The author gratefully acknowledges the assistance of Mrs. Dorothy Benson, Mr. Jim Phelan, Dr. Allan Jones, and Mr. Arne Beck throughout all phases of this investigation.

The contracting officer's technical representatives were Dr. Arthur J. Farkas and Dr. Kathleen P. Durning.

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SUMMARY

Problem

Family separation resulting from extensive periods of sea duty is a prevalent social condition for naval service personnel and their dependents. These periods of family separation may have an adverse affect on the psychological and physical adjustment of the wives and thus influence health care utilization and retention.

Purposes

The purposes of the study were (1) to determine the effects of family separation on a number of psychological, attitudinal, and behavioral attributes of Navy wives and (2) to examine the relationship between these variables and the service members' reenlistment intention.

Approach

Questionnaires were administered to a group of 40 wives whose husbands were deploying for sea duty and a group of 25 wives whose husbands were scheduled to remain in port before, during, and after a 7-month period of family separation. The questionnaires included measures of marital adjustment, stress (spousal, parental, financial), self-esteem, loneliness, health opinions, attitudes toward the Navy, and attitudes toward reenlistment. Questionnaires measuring marital adjustment, stress (spousal, parental, financial, occupational), attitudes toward the Navy, and attitudes toward reenlistment were administered to the husbands before and after the deployment. In addition, biweekly health and mood data were collected from the wives over the entire 7-month period of family separation.

Responses of the separated and nonseparated wives were compared for time periods before, during, and after the deployment. Responses of the husbands going to sea and the husbands remaining in port were compared before and after the deployment. In addition, biweekly health and mood data reported by the separated and nonseparated wives were compared over the course of the deployment. Finally, analyses were conducted to examine the relationship between various attitudes of husbands and wives and to identify those factors which best predict the reenlistment intent of the service member.

Findings

Differences in responses of separated and nonseparated wives were significant for only 2 of the 11 psychological, attitudinal, and behavioral measures included in this study. Separated wives experienced higher levels of depressive affect and visited the doctor more frequently than did nonseparated wives. Although there were no significant differences between deployed and nondeployed husbands, general morale factors in both groups declined over the 7-month period of the study.

The best predictors of the husband's reenlistment intent were (1) the wife's attitude toward her husband's reenlistment, (2) the husband's attitude toward the Navy, and (3) a high level of family stress perceived by the husband.

Conclusions

While family separation places a considerable strain on Navy wives, it is typically not debilitating. The general absence of significant differences between the responses of

separated and nonseparated wives suggested that the deployed husband remained a source of social support and that the wives were able to adapt to the problems of separation.

Elevations in depressive affect among the separated wives were viewed as a form of situational depression that is resolved when the husbands return. Although separated wives visited the doctor more frequently than did nonseparated wives, the level of physical symptoms reported by the two groups did not differ significantly. Reasons for the greater physician utilization among separated wives are not clear.

The reenlistment intention of the husband is believed to be formulated in partnership with his wife. The positive relationship between reenlistment intent and family stress as perceived by the husband may reflect the conflict between occupational and family role demands experienced by career Navy personnel.

Recommendations

1. Because Navy wives experience increased levels of depressive affect prior to their husband's deployment, separation related Navy services (e.g., ombudsman program, predeployment briefing, wives clubs) should be activated well in advance of the deployment date.

2. Further research should be initiated to (a) determine those factors involved in increased physician utilization among separated Navy wives, (b) identify those processes and behaviors that are most effective in coping with family separation, (c) explore formal and informal programs to minimize the difficulties inherent in family separation, and (d) examine the effects of Navy family policy on retention.

3. Because the family practice approach to ambulatory health care stresses continuity of care, preventive medicine, patient-doctor relationships, and patient education, it is recommended that families of servicemen in a deployment or predeployment status be given priority in assignment to family practice medicine.

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INTRODUCTION

Problem

Family separation is a prevalent and unavoidable condition of Navy life. As the husbands deploy for sea duty, the wives must assimilate new roles, adapt to single parenting, and adjust to increased strains associated with the separation experience. Because these adjustments are often difficult and must be made in the context of reduced social support, Navy wives may represent a special risk group for a variety of adverse psychological or physical outcomes. These outcomes, in turn, may directly affect the attitudes and behaviors of the service member. Since family support is an important factor in Navy retention, family problems associated with the separation experience may negatively influence the reenlistment decision of the service member.

Background

While the dynamics of Navy family separation are not widely understood, a number of studies have addressed some specific outcomes. Beckman, Marsella, and Finney (1979), for example, examined the effects of separation on the mood of the wives of nuclear submarine personnel. Using a crossover design, Beckman assessed depression levels in the fifth week of both the sea duty and home leave cycle and empirically documented the presence of depression during the separation period. These results corroborated and extended previous studies of the relationship between separation and depression in military wives in psychiatric outpatient clinics (Dickerson & Arthur, 1965; Isay, 1968; MacIntosh, 1968; Pearlman, 1970).

Although depression is the best documented outcome of family separation, a number of other social and psychological effects have been reported. These include issues regarding infidelity and associated marital difficulties (Lindquist, 1952; Pearlman, 1970), feelings of abandonment and aloneness (Boynton & Pearce, 1978; Gonzalez, 1970), role ambiguity (Boynton & Pearce, 1978; Hill, 1949), and problems with children (Gabower, 1960; Gonzales, 1970; Keller, 1973; Longabough, 1973; Pederson, 1966).

A growing body of literature indicates that stressful life events, such as family separation, may affect physical as well as psychological processes (Dean & Lin, 1977; Dohrenwend & Dohrenwend, 1974; Gunderson & Rahe, 1974; Hong, Wirt, Yellin, & Hopwood, 1979; Meyers, Lindenthal, & Pepper, 1971). People are more susceptible to all illnesses or develop a prolonged state of helplessness or hopelessness when (1) they are dissatisfied with their social and interpersonal environments, (2) they undergo a significant number of life changes, or (3) they suffer severe object loss or separations (Lewis, Beavers, Gossett, & Phillips, 1976). Hinkle (1974) reports that changes in significant social or interpersonal relationships are often accompanied by changes in habits, patterns of activities, intake of food and medication, and exposure to potential sources of infection or trauma. They are also frequently associated with changes in mood and with physiological changes directly mediated by the central nervous system. Any or all such changes might affect the frequency or severity of illness. Separation-related illnesses and physician visits were reported in a retrospective study of the wives of fleet ballistic submarine personnel (Snyder, 1978). These Navy wives recalled being far more ill and seeking more medical treatment when their husbands were at sea than when their husbands were at home. It must be pointed out, however, that the accuracy of retrospective data has been seriously challenged in the literature (Cartwright, 1963; Cornfield & Haenszel, 1960; McKinley, 1972). Snyder acknowledged this point and suggested the incorporation of a control group and the collection of concurrent data to validate her findings.

Although a number of studies indicate potential physical or psychological consequences of Navy family separation, the majority of these studies are rather limited in scope and focus exclusively on the wives. Forced family separations, however, affect the service member as well and may represent a major cause of attrition (Coates & Pellegrin, 1965). In a study of married enlisted personnel deployed aboard four amphibious ships, Jones and Butler (1980) found that the level of incompatibility between family and work roles was the single best predictor of stated intent to leave the service. While these and other studies have identified the family as a pivotal variable in retention (cf., Belt & Sweney, 1973; Grace, Holoter, & Soderquist, 1976; Malone, 1967; Trejo, 1979), the pathways through which family separation affects the reenlistment intent of the service member remain largely unexplored. Thus, specific separation-related outcomes must be identified before the nature and intensity of the separation experience can be understood and the relationship between separation, family adjustment, and reenlistment intent can be determined.

Purposes

The purposes of the present investigation were (1) to determine how family separation affects the attitudes and adjustment of Navy couples and (2) to explore the relationship between the attitudes and adjustment of the wife and the reenlistment intent of the service member.

Hypotheses

It was hypothesized that Navy wives who were separated from their husbands would exhibit higher levels of depressive affect, lower self-esteem, greater levels of stress, more loneliness, higher levels of neurotic symptoms, poorer attitudes toward the Navy and toward reenlistment, more physical symptoms, and more physician visits than would Navy wives whose husbands were at home. In addition, it was hypothesized that the service member's intent to reenlist would be significantly influenced by his wife's attitude toward the Navy and toward his reenlistment, his wife's level of psychological stress, his attitude toward the Navy, his perception of job and family stresses, and various demographic factors.

METHOD

Subjects

The sample consisted of wives of enlisted men aboard three similar amphibious assault ships. A separation group included 59 wives of personnel aboard two ships that were preparing to deploy for a 7-month period. A control or nonseparation group consisted of 29 wives of personnel aboard a ship scheduled to remain in port.¹ As the study progressed over the 7-month data collection period, 19 wives in the separated group and 4 wives in the nonseparated group were lost from the sample due to their husbands' transfers or departures from the Navy. Thus, the final sample consisted of 40 wives in the separated group and 25 wives in the nonseparated group. The wives averaged 31 years of age, had been married for an average of 7 years, had an average of 2 children, and had completed approximately 12 years of education. Differences between the separated and nonseparated groups on each of the demographic variables were negligible.

¹Although the control ship was scheduled to remain in port, routine periods of operation at sea occurred throughout the 7-month period.

Measures

The following psychological, attitudinal, and health-related measures were assessed at various times throughout the study.

1. Depressive Affect. The depression scale of the Mood Questionnaire (MQ) (Ryman, Biersner, & La Rocco, 1974) was used to assess depressive affect. This 40-item, three-choice response format questionnaire was developed from a more extensive 87-item adjective checklist developed by Johnson and Myers (1967). The present scales were factor-analytically derived from two separate administrations of the MQ to a sample of 1140 Navy recruits. Five factors were derived: depression, anger, fatigue, fear, and pleasantness. The fifth factor was subsequently divided into two scales: happiness and activity. Subsequent use showed good internal reliability and low repeat reliability as would be expected of transitory states. In the present sample, the six-item depression scale was used and exhibited an internal reliability² of .91. Further psychometric descriptions of this scale are presented in the literature (Rahe, Rubin, Gunderson, & Arthur, 1971; Ryman et al. 1974).

2. Marital Adjustment. Marital adjustment of the husbands and wives was assessed using the 32-item Dyadic Adjustment Scale (Spanier, 1976).³ In the present sample, the internal reliability of this instrument was .85.

3. Stress. A 7-item stress scale developed by Pearlin and Schooler (1978) was used to assess spousal, parental, financial, and occupational stress. The internal consistencies of this 7-item rating scale were .88, .86, .89, and .88 respectively.

4. Self-Esteem. Self-esteem was measured using Rosenberg's (1965) self-esteem scale. The internal reliability of this 10-item scale was .83.

5. Loneliness. Loneliness was measured using the 16-item Loneliness Scale developed by Rubenstein, Shaver, and Peplau (1979). The internal reliability of this scale was .80.

6. Health Opinions. Health opinions were assessed using the Health Opinion Survey (HOS) (Macmillan, 1957), a widely used, 18-item, self-report index of individual health status. In the present sample, the internal reliability of the HOS was .83.

7. Attitudes Toward the Navy. Husband and wife attitudes toward the Navy were assessed using six items constructed by Grace et al. (1976). These items were combined into a scale and yielded an internal reliability of .82.

8. Physical Symptoms. The measure of physical symptoms consisted of a checklist of 35 common physical symptoms compiled by the Stress Factors Department of the Naval Health Research Center (Ward, Rahe, Conway, Hervig, Ryman, & Vickers, 1979). On a biweekly basis, the wives checked any minor health problems they had experienced.

²Coefficient alpha was used as a measure of internal reliability.

³Three items regarding the overt display of affection were considered sensitive and were deleted from the instrument.

Procedure

Six weeks prior to the departure of the ships that deployed, letters were sent to all married men on all three ships inviting them to participate in the research project.⁴ In subsequent telephone follow-ups, 80 percent of the wives who lived locally and who could be located agreed to participate in the study. The refusal rates did not differ substantially between ships. Informed consent was obtained after procedures had been fully explained to the subjects. Wives were divided equally among four trained interviewers who collected demographic data and administered survey questionnaires during home interviews conducted 2 weeks prior to the separation, at the midpoint of the 7-month separation, and 2-to-4 weeks after the separation period ended. A 7-month supply of predated mood questionnaires, health logs, and physician visit records was left with each wife to be completed biweekly and mailed to the experimenter. Only wives who completed questionnaires at all three assessment points and who completed 10 or more of the biweekly reports were included in the analysis ($N = 51$). Husbands were surveyed during the home visits pre- and postseparation. Methodological and logistical issues regarding research on military family separation are summarized in the appendix.

Analysis

A variety of statistical procedures was used to analyze different aspects of the data. The questionnaires assessing measures of marital adjustment, stress, psychological adjustment, and attitudes were administered to assess potential differences between the separation and nonseparation groups at various periods in the separation. Responses to these questionnaires were analyzed using a split-plot factorial analysis of variance (ANOVA) (Kirk, 1968). In this statistical procedure, the separated and nonseparated groups were analyzed as a between-groups factor and the pre-, mid-, and postseparation time periods were analyzed as repeated measures. Those questionnaires that assessed measures of depressive affect, physical symptoms, and physician visits were administered on a biweekly basis. Statistical comparisons of the average scores of the separation and nonseparation groups on each of these measures was made using a t-test for independent samples. The demographic and attitudinal measures that were assessed to predict reenlistment intent were analyzed using stepwise multiple regression procedures.

RESULTS

Because of the complexity of the design, the large number of instruments used, and the dual purpose of the study, the results are presented in two sections. The first section presents analyses of the mean differences between the separated and nonseparated groups during pre-, mid-, and postseparation time periods. The second section presents results of multiple regression analyses conducted to identify those background and family variables that were predictive of the reenlistment intention of the service member.

⁴Approximately 50 percent of the married population was not eligible to participate in the study because (1) the wife did not reside in the area, (2) the wife had left the area for the deployment, or (3) the service member could not be located by mail.

Effects of Separation

Attitudes

Attitudes regarding the Navy, the burden presented by family separation, the reenlistment decision, and the wife's influence on the husband's reenlistment decision were assessed among separated and nonseparated wives during pre-, mid-, and post-deployment phases of the study. Each attitude measure was analyzed using a 2 (separation/nonseparation group) x 3 (pre/mid/postdeployment) repeated measures ANOVA.

The analysis of the perceived burden of separation revealed a significant interaction between the separation condition and the phase of the study ($F(2,124) = 4.04, p < .05$). While the nonseparated wives' perceptions of the burden of family separations remained fairly constant over the course of the study, the separated wives' perceptions of this measure increased (Figure 1). This result was generally corroborated by the relationship between expectations and the realities of the separation experience as assessed among the separation group wives at middeployment. This assessment indicated that a substantial proportion of the wives believed that the separation was more difficult than expected in areas such as spousal relations (34%), parenting (57%), finances (45%), affective problems (57%), and health (47%).

Similarly, the analysis of the wives' perceptions of their influence over the husbands' reenlistment decision demonstrated a significant interaction between the separated vs. nonseparated condition and the phase of the study ($F(2,124) = 3.44, p < .05$). During the middeployment phase of the study, separated wives perceived a greater degree of influence over their husbands' reenlistment decision than did wives in the nonseparated group (Figure 2).

Analyses of the wives' attitudes toward reenlistment indicated that the main effect of pre-, mid-, and postdeployment was significant ($F(2,124) = 13.52, p < .001$). During the course of the study, the wives' attitudes toward reenlistment declined from a mean level of 3.58 at the beginning of the study to 3.30 at the midpoint to 2.92 during the last phase. Although the general attitude of the wives toward reenlistment declined over the course of the study, neither the main effect of separated vs. nonseparated nor the interaction was significant. Analyses of the wives' attitudes toward the Navy revealed no significant differences in the main effects or in the interaction.

The same cluster of attitudes regarding the Navy, the burden presented by family separation, the reenlistment decision, and the influences of the wife on the husband's reenlistment decision were assessed among the separated and nonseparated husbands pre- and postdeployment. Results were analyzed using a 2 (separated/nonseparated group) x 2 (pre/postdeployment) repeated measures ANOVA.

Analysis of the perceived burden of separation demonstrated a significant main effect between separated and nonseparated husbands ($F(1,48) = 4.07, p < .05$). Separated husbands (Mean = 4.18) perceived the burden of separation as greater than did nonseparated husbands (Mean = 3.75). Neither the main effect of separation phase nor the interaction was significant.

The results of the analysis on the attitude toward the Navy indicated that the main effect of pre- vs. postdeployment was significant ($F(1,51) = 16.40, p < .001$). The husbands generally expressed less positive attitudes at the end of the study (Mean = 17.38) than at the beginning (Mean = 19.90). Neither the main effect of separated vs. nonseparated

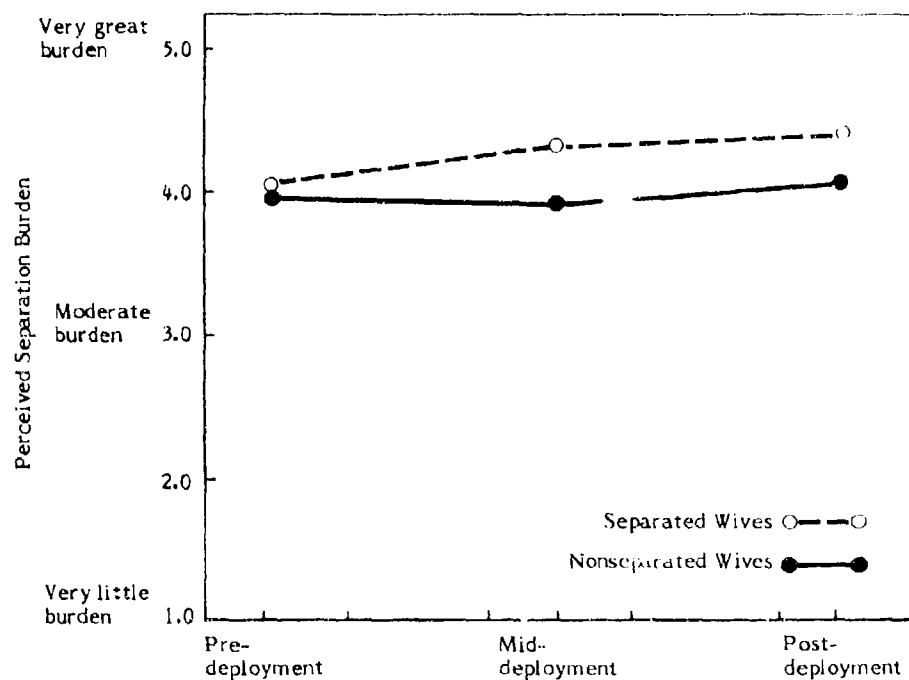


Figure 1. Perceived burden of separation among separated and nonseparated wives.

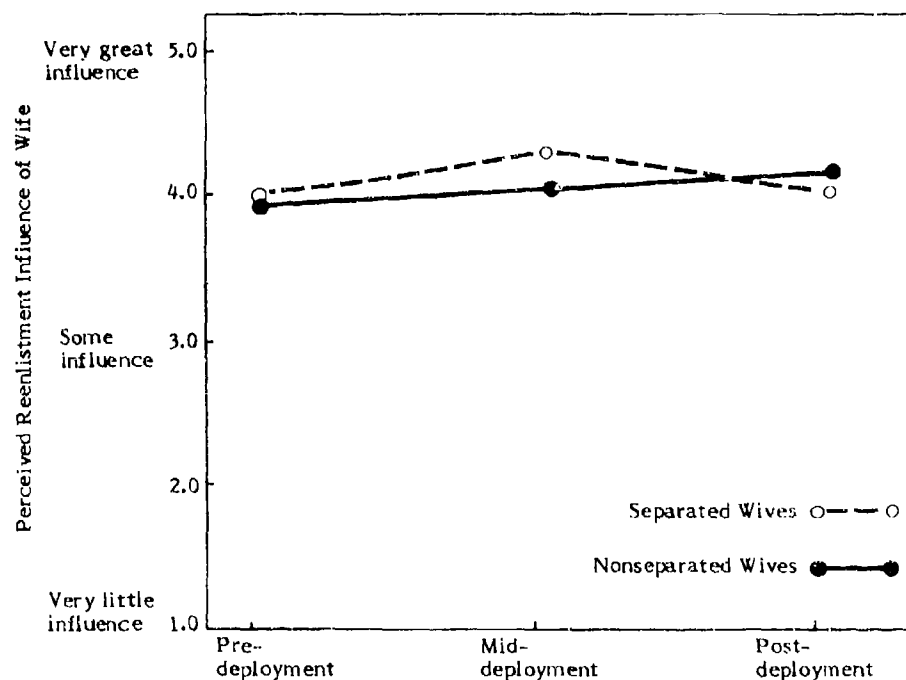


Figure 2. Perceived influence of separated and nonseparated wives on their husband's reenlistment decision.

group nor the interaction was significant. The results of the analyses regarding the husbands' reenlistment intent and their perceptions of influence of the wife on the reenlistment decision were not significant.

Further analyses of these data revealed that there was a good deal of similarity between the attitudes of the husbands and wives. Pearson correlation coefficients computed on the postdeployment data indicated a significant relationship between husband and wife ($N = 51$) attitudes regarding (1) the Navy ($r = .41, p < .05$), (2) the reenlistment intent ($r = .56, p < .05$), and (3) the degree of influence the wife exerts on the reenlistment decision ($r = .53, p < .05$). The relationship between husband and wife attitudes regarding the burden of separation, however, was not statistically significant ($r = .16$).

In summary, the analyses in this section indicated that, during the midpoint of the separation, wives in the separation group believed that they had more influence over their husband's reenlistment intent than did wives in the nonseparated group. This difference was not apparent during the pre- or postseparation periods.

Generally speaking, the burden of separation was perceived as being greater among the wives and husbands in the separation group than among those in the nonseparation group. During the course of the 7-month study, the attitudes of the separated and nonseparated wives toward the reenlistment of their husbands declined significantly. A similar decline was found in the attitudes toward the Navy expressed by the husbands in both the separation and nonseparation groups. Correlational analyses revealed a good deal of overlap between the attitudes of the husbands and their wives.

Psychological Adjustment

Measures of psychological adjustment among separated and nonseparated wives included stress, marital adjustment, self-esteem, loneliness, health opinions, and depressive affect. Because of the additional interview time required to explain the study, obtain informed consent, and collect demographic information during the predeployment interview, only questionnaires assessing the stress and marital adjustment measures were administered at that time. The entire battery of psychological questionnaires was administered during the mid- and postdeployment phases.

Each of the measures of stress (spousal, parental, financial), marital adjustment, self-esteem, loneliness, and health opinions were analyzed using a split-plot factorial ANOVA. The separation vs. nonseparation group was treated as a between-groups factor; and the phase of the study, as a repeated measure. None of the main effects or interaction terms of these analyses was significant. The results indicated that family separation did not significantly affect the wives' scores on any of these psychological measures.

Depressive affect was measured on a biweekly basis for 16 time periods. The 16 depressive affect scores for the separated and nonseparated wives were grouped according to temporal phase of the separation. The preseparation phase consisted of the 2-week period prior to the departure of the husbands of the separation group. The midseparation phase consisted of the mean depressive affect score of the 14 biweekly phases reported while the men were at sea. The postseparation phase consisted of the 2-week period subsequent to the return of the husbands. During each of the three phases, t-tests for independent samples were computed between the separated and nonseparated wives.⁵ As

⁵A repeated measures ANOVA was not used because of the reduced sample size during the postdeployment period.

shown in Table 1, the separated wives exhibited significantly more depressive affect than did the nonseparated wives during both the pre- and middeployment phases. In the postdeployment phase, the nonseparated wives had significantly higher scores (Figure 3).

Table 1
Comparison of Depressive Affect Scores of Separated and Nonseparated
Navy Wives During Deployment

	Separated Wives			Nonseparated Wives			t
	\bar{X}	S.D.	N	\bar{X}	S.D.	N	
Preseparation	9.72	2.94	29	6.78	1.64	9	3.81***
Separation	10.03	2.89	31	8.03	2.42	20	2.67**
Postseparation	6.57	1.40	14	10.20	4.78	10	2.33*

*p < .05.
**p < .01.
***p < .001.

Note. Although the sample size varied in both groups across time periods, those variations were not related to demographic factors and did not appear to be systematic. The primary reason for the variation was a logistical difficulty in conducting a large number of interviews during the compressed time period represented in the pre- and post-phases. During the separation phase, those individuals who had also participated in the pre- and/or post-phases scored no differently than did those who participated only in the separation phase.

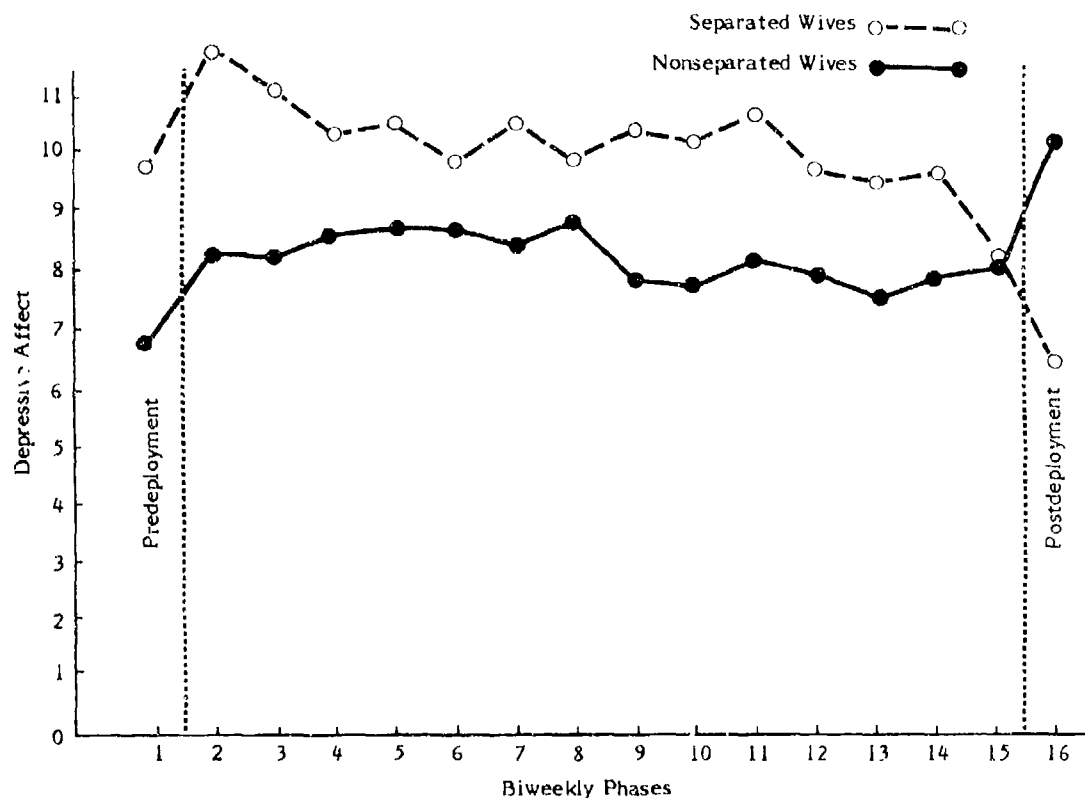


Figure 3. The course of depressive affect among separated and nonseparated wives.

The marital adjustment and stress (spousal, parental, financial, occupational) scores of the husbands were assessed pre- and postdeployment. Each of these variables was analyzed using a 2 (separated/nonseparated group) x 2 (pre/post-deployment) split-plot factorial ANOVA. Although the variable of family separation was not significantly related to any of the marital adjustment or stress measures, the levels of financial stress ($F(1,50) = 4.58, p < .05$) and occupational stress ($F(1,47) = 10.82, p < .01$) increased significantly in both groups during the 7-month period of the study. Between the pre- and postdeployment measures, financial stress increased from 18.3 to 20.0, and occupational stress increased from 15.8 to 18.4.

Physical Health

An analysis of the effects of family separation on physical health was computed using a t-test for independent samples. The difference in the average number of symptoms between the separated and nonseparated wives was not significant ($t(40) = .25, p > .05$). In both groups, those symptoms reported most frequently (i.e., an average of 2 or more times per wife over the 16 biweekly phases) were head colds, sinus problems, sore throat, back problems, headaches, stomach-intestinal upset, muscle aches or cramps, sleep difficulties, and weight loss or gain.

To examine the effects of family separation on physician utilization, the degree of utilization of each subject was prorated by dividing the total number of doctor visits by the number of biweekly reporting phases completed by the subject. An examination of the

differences between the separated and nonseparated wives on physician utilization revealed that the separated wives went to the doctor significantly more often than did the nonseparated wives ($t(49) = 2.57, p < .05$).

Prediction of Reenlistment Intent

To derive a composite of variables that predicted the reenlistment intent of the service member, a number of variables conceptually related to reenlistment intent were entered in a Pearson product-moment correlation matrix with the criterion measure of reenlistment intent (Table 2).⁶ This procedure permitted the elimination of those variables that did not obtain a statistically significant relationship with the criterion. Within this predictor battery, a composite variable labeled "wife stress" was constructed by adding middeployment wife's scores on loneliness, depressive affect, parental stress, and spousal stress. The average intercorrelation of these variables was .57. A composite variable labeled "husband family stress" was constructed by adding the husband's spousal and parental stress scores ($r = .32$). Similarly, a composite variable labeled "husband job stress" was constructed by adding the husband's financial and occupational stress scores ($r = .58$).

As shown in Table 2, the total battery of potential predictor variables included sociodemographic data, attitude assessments, and stress measures. Of the original 12 variables, three were significantly related to the criterion. The wife's attitude toward her husband's reenlistment, the husband's attitude toward the Navy, and the degree of family stress perceived by the husband were all positively related to his reenlistment intent. In other words, those service members whose wives wanted them to reenlist, who held positive attitudes toward the Navy, or who perceived high levels of family stress were more likely to express positive reenlistment intentions. The above three predictors were entered into a stepwise multiple regression analysis and yielded a multiple R^2 of .39 (Table 3). With an appropriate allowance for shrinkage (Kerlinger & Pedhazur, 1973), the multiple R^2 was .35.

⁶Because separation condition was not significantly related to the criterion of reenlistment intent ($r = -.03, p > .05$), members of both separated and nonseparated groups were included in the analysis.

Table 2
Zero-order Correlations Among Predictors and Criterion Measure
of Reenlistment Intent (N = 44)

Predictor	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Pay grade	--	--	--	--	--	--	--	--	--	--	--	--	--
2. Race (Caucasian -1, Noncaucasian -2)	.32**	--	--	--	--	--	--	--	--	--	--	--	--
3. Number of children	.30*	--	--	--	--	--	--	--	--	--	--	--	--
4. Date enlistment ends	--	--	--	--	--	--	--	--	--	--	--	--	--
5. Date of marriage	.60**	--	.40**	--	--	--	--	--	--	--	--	--	--
6. Wife working	--	.28*	--	--	--	--	--	--	--	--	--	--	--
7. Husband family stress	--	--	--	--	--	.29*	--	--	--	--	--	--	--
8. Husband job stress	--	--	--	--	--	--	.34**	--	--	--	--	--	--
9. Wife stress	--	.31**	--	--	--	--	.32**	--	--	--	--	--	--
10. Wife attitudes toward Navy	--	--	--	--	--	--	--	.42**	--	--	--	--	--
11. Wife reenlistment attitudes	--	--	--	--	--	.27*	--	.34**	.44**	.66**	--	--	--
12. Husband attitudes toward Navy	--	--	--	--	--	.30*	--	.45**	--	.40**	.45**	--	--
13. Husband reenlistment attitudes	--	--	--	--	--	--	.28*	--	--	--	.49**	.44**	--

Note. Only significant values are reported.

*p < .05.

**p < .01.

Table 3
Results of Stepwise Multiple Regression of Selected Predictors on
Reenlistment Intent Presented in Order of Entry

Variable	Multiple R	R ²	R ² Change	Beta	F
Reenlistment Attitude (Wife)	0.49	0.24	0.24	0.31	5.03*
Family Stress (Husband)	0.55	0.30	0.06	0.32	6.29*
Attitude Toward Navy (Husband)	0.63	0.39	0.09	0.35	6.14*

*p < .05.

CONCLUSIONS AND IMPLICATIONS

Effects of Separation

In general, the results of this investigation did not support the hypothesis that difficulties engendered during periods of Navy family separation become manifest in psychological or physical problems. Statistical comparisons of the separated and nonseparated wives indicated that Navy family separation had no significant effect on measures of self-esteem, loneliness, health opinions, marital adjustments, physical symptoms, and stress (spousal, financial, and parental). Similarly, family separation had no significant effect on the marital adjustment or stress levels (spousal, financial, parental, occupational) of the husbands.

This lack of significant results, of course, does not imply that Navy family separation is not difficult or demanding. The results of this study indicated that the perceived burden of family separation is significantly increased among those couples who are separated. In addition, a substantial proportion of separated Navy wives believed the separation was more difficult than expected in areas such as spousal relations, parenting, finances, affective problems, and health. These results support the general finding that periods of Navy family separation are quite demanding (Bermudes, 1973; Bey & Lange, 1974; O'Beirne, 1976).

The demands of family separation, however, do not necessarily result in adverse psychological, attitudinal, or physiological changes. Family members, as well as family systems, are often very adaptive and thus somewhat resistant to the stresses inherent in separation (McCubbin, 1979; Nice, McDonald, & McMillian, 1981). In the present study, family communication may have represented one mechanism for social support and stress reduction during the separation period. During the midseparation interview, results indicated that 88 percent of the wives and 77 percent of the husbands wrote at least once per week. This high level of correspondence indicates a fairly strong commitment to the family and a potential vehicle for coping with family separation.

Although the effects of separation were not evident in a number of psychological and attitudinal areas, the results of the present investigation supported the hypothesis that wives of Navy personnel who are at sea for prolonged periods of time exhibit higher levels

of depressive affect than do wives of Navy personnel who are at home. This empirical demonstration of separation-related depressive affect among a nonclinical sample of Navy wives bolsters similar findings in naval outpatient psychiatric clinics (Dickerson & Arthur, 1965; Isay, 1968; Pearlman, 1970) and in the submarine community (Beckman et al., 1979). This depressive affect begins at least 2 weeks prior to the departure of the husband and persists throughout the separation. The early onset and extensive duration of this mood change does not imply that separated Navy wives typically experience clinical levels of depression or that professional assistance is indicated. Separation-related depressive affect may, however, inhibit wives from participating in formal and informal Navy programs developed to provide support during separation. Unless communication and support networks are firmly established well prior to separation, it is likely that the apathy, indecisiveness, and inertia associated with depressive affect may minimize participation in any support program.⁷

As the ships returned from the deployment, depressive affect quickly dissipated in the wives who had been separated from their husbands (Figure 3). This precipitous drop in depressive affect is consistent with Akiskal's (1979) view of "situational depression" in which the depressed mood lasts as long as the aversive situation persists and full recovery is expected when the life situation is reversed or changed for the better. A dramatic rise in depressive affect among the nonseparated wives, however, appeared to be triggered by the return of the ship. The end of a major period of deployment for ships in one squadron often signals the imminent departure of their "sister ships" in another squadron. It is believed that the increase in depressive affect among the nonseparated wives reflects the anticipation of their husband's upcoming tour at sea.

In addition to experiencing increased levels of depressive affect, the separated wives visited medical facilities significantly more frequently than did the nonseparated wives. The lack of support for the hypothesis that separated wives have more illnesses or physical symptoms than do nonseparated wives argues against a strictly medical interpretation of the differential utilization rates. One explanation for the increased utilization among separated wives is that they become more oriented toward preventive medicine and seek medical assistance for symptoms they might otherwise treat at home. In a study of the wives of nuclear submarine personnel, Snyder (1978) found anecdotal support for a preventive medicine interpretation of utilization. An alternative hypothesis is that psychological distress and lack of social support associated with family separation promotes an increase in physician utilization for nonmedical problems (Tessler, Mechanic, & Dimond, 1976). While these and other explanations appear plausible, further research is necessary to determine the specific factors involved in increased physician utilization during periods of family separation.

Prediction of Reenlistment Intent

The decision to reenlist and continue one's career in the Navy is influenced by a host of factors both within and beyond the influence of naval policy (Malone, 1967; Trejo, 1979). In the present study, a number of stress and attitudinal measures of both naval personnel and their wives were used in conjunction with background variables to predict the reenlistment intent of the service member. The results indicated a substantial degree

⁷The original design of this study included a professional program of social intervention. This program was viewed favorably by the wives and was initiated shortly after the departure of one of the ships. A general lack of motivation and participation on the part of the wives, however, forced an early cancellation of this effort.

of overlap between the attitudes of husbands and wives regarding the Navy and reenlistment. Given the high degree of influence that the wife has on the reenlistment decision (Figure 1) and the significant positive correlations between husband and wife attitudes (Table 2), reenlistment probably represents a conjoint decision. Those variables that made a significant and unique contribution to the reenlistment intent of the husband were (1) the wife's attitude toward her husband's reenlistment, (2) the husband's attitude toward the Navy, and (3) the level of family stress perceived by the husband. The positive influence of the wife replicates Malone's (1967) work in which "attitude of wife, girlfriend, and/or family regarding reenlistment" was a highly important variable in the reenlistment decision of first- and second-term enlisted populations.

Although it is clear that the husband's attitude toward the Navy should influence his reenlistment decision, it is not clear why, in the current study, the attitude of both separated and nonseparated husbands declined between the pre- and postdeployment assessment periods. The wives' attitudes toward reenlistment and the husbands' perceptions of financial and occupational stress also deteriorated between the pre- and postdeployment period. One might speculate that increased economic pressures exerted by inflation and the perceived erosion of military benefits may have precipitated a general decrease in Navy morale and attitudes (Kelly, 1979; Janowitz & Moskos, 1979; Purcell, 1979; Vian, 1979).

The final predictor of the husband's reenlistment intent was his perceived level of family stress. Those service members who reported higher levels of family stress were more likely to state a positive intent to reenlist. This finding lends some support to the contention that a military career may serve to legitimize an unconscious desire by some couples to actually be separated (Frances & Gale, 1973). On the other hand, correlation does not imply causation. The intention to reenlist may be responsible for some increase in family stress. Unfortunately, the multiple regressions were conducted on a very small sample size ($N = 45$) and were not cross-validated. Therefore, caution must be exercised in the interpretation and generalization of these results.

In conclusion, this investigation represented a controlled, longitudinal analysis of the effects of a 7-month period of Navy family separation. Although results indicated that the separation experience was difficult for both husbands and wives, the majority of hypothesized psychological and physical outcomes were not supported. The only significant differences between the separated and nonseparated wives were that the separated wives experienced higher levels of depressive affect and visited a physician more frequently. Depressive affect began prior to the departure of the husband and continued until his return. Analyses of the reenlistment intention data revealed that the separation *per se* had no significant effect on this attitude. The results did, however, support previous findings that the family is an important factor in determining the reenlistment intent of the service member.

This investigation included a variety of psychological and attitudinal measures to provide a global assessment of the separation experience. The complexities inherent in this area of research, however, preclude definitive results from a single study. Further research on a variety of Navy populations is needed to replicate and extend the findings presented in this report.

RECOMMENDATIONS

1. Among Navy wives, feelings of depression constitute a fairly widespread response to family separation. The onset of the mood change occurs prior to the departure of the husband and persists until his return. Because indecision, apathy, and lack of motivation may accompany the onset of depressive affect, it is recommended that separation-related Navy services (e.g., ombudsman program, wives' clubs, predeployment briefings) become activated well prior to the deployment.

2. During periods of family separation, Navy wives seek medical assistance more frequently. The reasons for the increased visits are not totally medical and may be related to psychological distress, social support needs, or preventive medicine. Thus, it is recommended that families of servicemen in a predeployment or deployed status be given preference in assignment to family practice medicine where possible. Because the family practice approach to ambulatory health care stresses continuity of care, preventive medicine, patient-doctor relationships, and patient education, it may provide more needed service to families during separation.

3. Further research with larger samples is required to (a) determine those factors involved in increased physician utilization among separated Navy wives, (b) identify those processes and behaviors that are most effective in coping with family separation, (c) explore formal and informal programs to minimize the difficulties inherent in family separation, and (d) examine the effects of Navy family policy on retention.

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APPENDIX
METHODOLOGICAL AND LOGISTICAL ISSUES IN THE
STUDY OF NAVY FAMILY SEPARATION

METHODOLOGICAL AND LOGISTICAL ISSUES IN THE STUDY OF NAVY FAMILY SEPARATION

While logistical and methodological issues are often troublesome in field research, the difficulties are increased substantially in conducting research on a sample of highly mobile Navy families. When dealing with a dependent population of civilians, Privacy Act considerations all but preclude the identification of and access to samples. In our study, the marital status and home addresses of the ships' enlisted personnel were obtained from shipboard records compiled for the purpose of emergency recall. Because of the frequency of residential moves and the turnover of personnel, these records are often outdated and inaccurate.

Efforts to locate and identify Navy families must occur several months prior to a deployment. Ideally, personnel aboard ship could be individually interviewed to determine their willingness to participate and to verify the accuracy of their residence information. Unfortunately, such shipboard interviews interfere with the ship's routine and are discouraged. An alternative method of sample identification is to circulate a sign-up sheet among the ship's crew. Without personal contact, however, interest will be low.

Once a sample has been identified, maintaining the sample is quite difficult. Even though we stressed the importance of maintaining contact, routinely entered our phone number in a permanent record in the home (e.g., calendar, appointment book, address book), and left self-addressed franked post cards to indicate a change of address, families moved frequently and did not notify the research group. Although we were sometimes able to trace family members through neighbors, we had to assume, in some cases, that they had left the area.

A second problem in maintaining a Navy family sample is that telephones are frequently disconnected and new numbers are seldom available. The wide dispersion of our sample throughout the country increased the difficulty of relocating and contacting families without telephones.

Another difficulty in maintaining the sample involved the scheduling and completion of interviews. Because of the variability of work schedules and other commitments among the sample, appointments for home interviews were frequently scheduled at the convenience of the participants. This procedure necessitated the scheduling of large numbers of evening and weekend visits. Although appointments were made approximately 1 week in advance and confirmed by telephone the day before, occasionally families were not at home for the interview. While this method of cancellation was not the norm, it proved costly in terms of travel, time, and the logistics of rescheduling.

A final problem in maintaining the sample involved the collection of biweekly data. In anticipation of sporadic response rates on the mailing of the biweekly data, a "tickler file" was compiled before the study began. The purpose of this file was to track the receipt of data from each subject so that individuals could be prompted by telephone when omissions occurred. During the early phases of the study, however, this procedure was considered too intrusive and it was abandoned.

A second procedure that was abandoned early in the study was an attempt to develop a program of social intervention among half of the wives in the separation group. This program was designed to increase social supports, psychological supports, and specific coping behaviors. These goals were to be accomplished through a series of biweekly group meetings that emphasized information dissemination, family growth, and education. Information dissemination was to be accomplished through the attendance of

representatives of various Navy and community service organizations (e.g., Navy Relief, Chaplain's Office, Legal Office, Credit Union, Career Counseling, Community Colleges, etc.). Family growth was designed to facilitate the development of mutually supportive relationships both within the family and with neighbors and friends. Members from the professional community who were experienced in working with Navy wives during separation volunteered to attend specified meetings to facilitate friendships, promote positive sharing of separation experiences, and help organize projects to maintain frequent, positive contact between the wives and their deployed husbands. The third aspect of the intervention involved a variety of adult education and college level courses that were made available to the wives. The classes were to be tailored to fit the needs of the group and could be scheduled to maximize attendance. These cost-free classes, provided through the local community college military education program, included such topics as family financial planning, child development and growth, first aid, family legal education, consumer education, narcotics and drug abuse, family preparation, home maintenance, and improvement of basic educational skills. Completion of a minimal program would result in a certificate of accomplishment from the community college system.

A general outline of the program was thoroughly discussed with the ship's ombudsman and presented to the families during the predeployment briefing and at a ship's picnic. The first meeting was to be held 3 weeks after the husbands left for sea. Wives were notified 2 weeks in advance and reminded the day before the meeting.

The agenda of the first meeting entailed a brief, 15-minute movie that was an action-oriented description of the capabilities and mission of the type of ship on which the husbands were deployed. This film effectively communicated the daily routine of life at sea and the strategic importance of peacetime deployments. Upon completion of the film, the Force Master Chief Petty Officer assigned to the staff of the deployed ship's Type Commander was scheduled to address the group and answer any questions regarding the ship's schedule, mission, or routine.

The first meeting was held in a central location above the base day-care center at 7:00 p.m. A transportation co-op was organized, child care was provided, and refreshments were served by the experimenters. Although 26 wives confirmed that they would attend on the day before the meeting, only four actually came. After the meeting, we enlisted their support in organizing a grass-roots effort to encourage participation. These wives were very favorably impressed with the program and agreed to establish a "telephone tree" to organize the group. Their efforts failed, as did ours, and the intervention project was aborted.

From this experience, we were reminded that social programs are very difficult to implement. Successful programs will probably have to be initiated or facilitated informally by members within the group rather than formally by outsiders. Programs designed to reduce the problems of separation should be operational months before the separation occurs and should be organized around the entire family rather than just the wives. Attempts to socially organize Navy families on a ship-by-ship basis (e.g., wives' clubs) rather than on a neighborhood-by-neighborhood basis should be reconsidered. Within the local metropolitan area, the geographic dispersion of families associated with any given ship is immense. In most social relationships, proximity is a far more salient factor than is organizational affiliation.

The home interview technique used in the current study provided a good deal of valuable information. In addition, the personal contact established in this process was important in providing assurances to and enlisting cooperation from Navy families. This

interview method of data collection, however, is inefficient. The cost in time and travel associated with home interviews will become limiting factors in the size of any research sample. Therefore, the design and execution of large-scale, longitudinal studies of Navy family separation must balance the necessary costs incurred through personal contact and the more efficient collection of questionnaire data. These efforts will contribute significantly to our understanding of the processes of adjustment to separation and their impact on a variety of readiness-oriented criteria.

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